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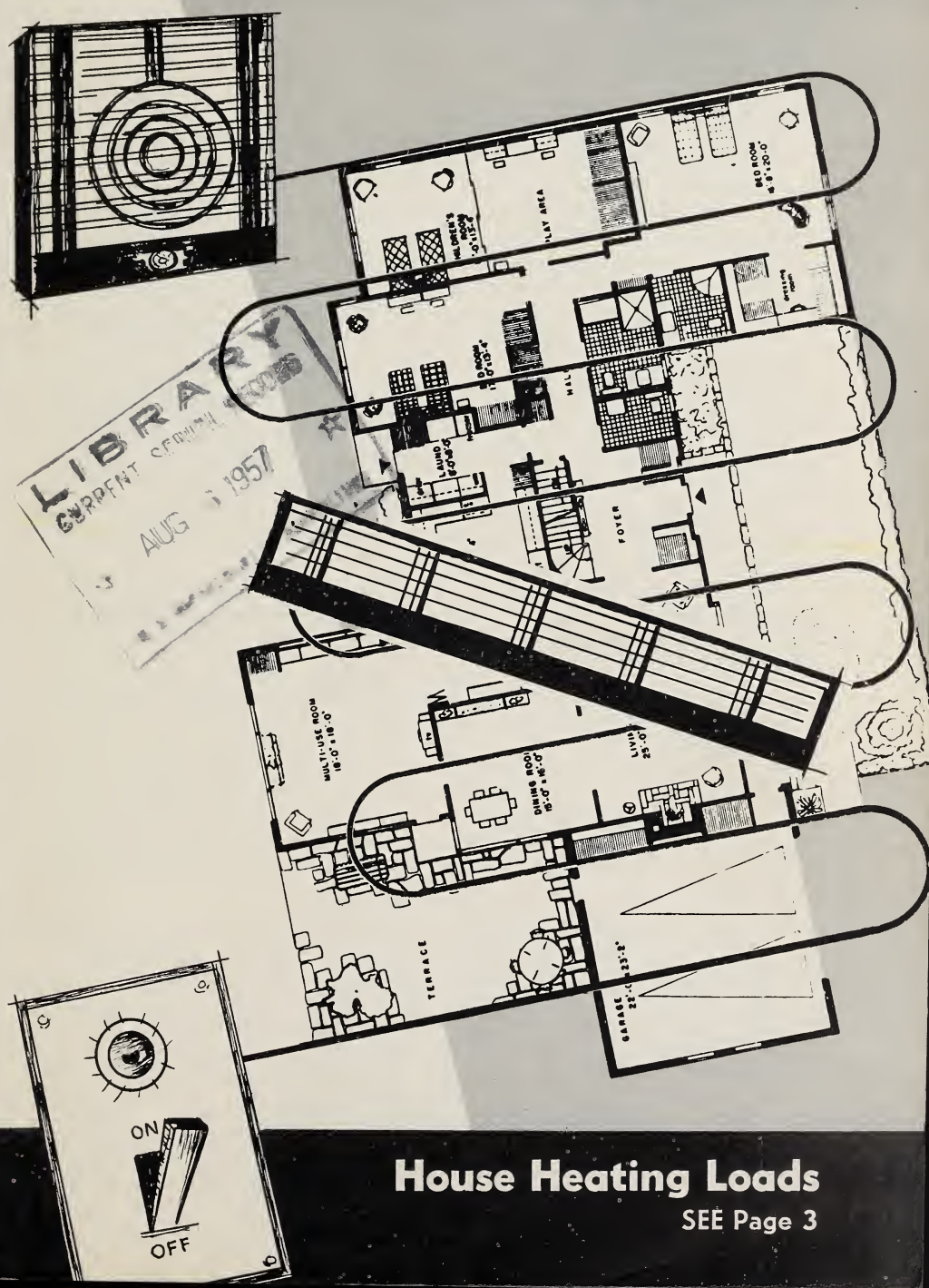
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Rural Lines

RURAL ELECTRIFICATION ADMINISTRATION • U. S. DEPARTMENT OF AGRICULTURE

JULY
1957



House Heating Loads
SEE Page 3

A Message from the



ADMINISTRATOR

My second year as Administrator of REA began June 26. I've always believed in looking to the future, rather than the past, but in this case I think I'll be forgiven for taking a look in both directions.

Today I feel I am considerably richer for the knowledge I've gained and the thousands of friends I've made over the country. These friends are the men and women who are giving themselves to the development of the local rural electric and telephone systems. The better way of life they have made for themselves, for others and for whole communities—not dollars or miles of line—is the real measure of the success of the programs.

This is not to belittle the magnitude of the accomplishment in terms of physical plant or sheer numbers of rural families served by our electric and telephone systems. Wherever I have gone I have seen tangible evidence of progress and the growing service strength of REA borrowers.

But bigger and more basic than this concrete evidence of success is the human aspect of the programs—the people who carry them forward and the families who are served.

The strength of our program is people. I came to REA with this impression firmly rooted in my personal experience. After a year of visiting cooperatives around the country that impression has changed to a conviction.

First-rate service provided to individual consumers and the good will created by this service and by healthy public relations are the firm foundation for future system growth.

That is something we should never forget. Nor should it be forgotten that our programs need support from the general public, too—and that *the public is people*. In the final analysis, the success of telephone and electric systems is dependent on the continuing support of the people they serve and on the community at large.

David G. Hamill

Administrator.

Experience of Indiana REMC's Answers Some Questions About

House Heating Loads

For rural electric systems that are cautiously feeling their way into house heating, Indiana qualifies as a proving ground and comes up with some answers.

Rural electric membership corporations there point out that they are located in one of the northern tier of states, and that 97 percent of Indiana's 150,000 farms have electric service. These conditions forced managers and boards to accept the challenge of electric house heating before its feasibility was established.

How the new loads developed and how the REMC's in Indiana like them are told in answers to questions asked of managers and officers of the Indiana Rural Electric Cooperative, statewide association.

What is the status of electric house heating among electric borrowers in Indiana?

Nearly 600 REMC members heated homes, farms, and community buildings electrically in 1956 and 1957, just 6 years after REMC managers started to discuss the subject at statewide meetings. Two systems that made trial installations in 1953 now count more than

100 electric heating consumers on their lines. Whitley County REMC at Columbia City, near Ft. Wayne, leads with 120 all-electric homes; and Morgan County REMC at Martinsville, near Indianapolis, places second with over 100 homes and its own office heated electrically. Most installations use resistance heating (baseboard, panel and ceiling types) in new homes; a few use heat pumps for year-round temperature control.

How was it started?

Indiana statewide's promotion of electric heating, begun in 1951, helped create member interest. Inquiries and installations increased when the *Indiana Rural News* called heating a key part of electric living in 1953. After that the statewide publication ran two or more promotional stories each year. A special electric heating round-up issue in January 1957 brought nearly 300 inquiries from REMC members. Local news letters also used the success story pattern: names, pictures, costs and quotes of users.

How is it promoted?

Year-round promotion, as in wiring, is the rule. But spring

Heating the 2-story frame house of R. J. Newcomb family averages \$175 to maintain 75° F. They use panel heating (below drapes in photo) planned and served by Marshall County REMC.





Wade Duckworth, board member of Morgan County REMC, keeps his kwh record on this "furnace." Units heat six rooms of new 1270 sq. ft. limestone ranch house at a cost of \$125.



Mr. and Mrs. Duckworth enjoy the comfort of electric heat in the dining area of their all-electric kitchen. An all-electric laundry washes and dries clothes in an adjoining room.

housing starts and fall's first nippy weather heighten interest. Reports on foundation digging and applications for electric service at new home sites reveal opportunities to discuss electric heating.

Convenience, safety, comfort, and savings in construction and upkeep appeal to prospective users. But "rate is everything," according to some managers. They feel that "2 cents competes, but 1½ cents converts." An all-electric rate with a low 1½ to 2 cents is widely used in Indiana. After a season's use with a test meter installed, tours or visits and success stories can follow to interest other members.

How is it controlled?

Advisory service to members during planning and installing helps assure consumer satisfaction. Electrification advisers and managers, trained in statewide 2-day workshops and in district meetings, pass their information on to consumers. They also advise building tradesmen on installations. Parke County REMC, Rockville, inspects wiring and insulation before granting its all-electric rate. Southeastern Indiana REMC, Osgood, requires fans to be installed in kitchen and bathroom to control humidity.

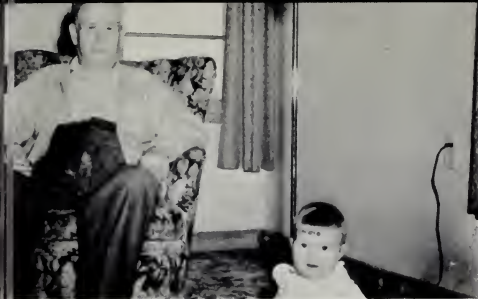
Nearly all REMC's use separate kwh metering to provide cost figures, so that management will know the revenues derived from electric heating. Several REMC's have installed demand meters on different types of installations to determine load characteristics.

What are the results?

Thermal recording ammeters on heating loads indicate that these loads are greatest from midnight to 7:00 a.m., just as with thermostatically controlled fuel-burning equipment. The "flywheel" effect of good insulation that holds heat longer provides better carryover of peak load into the very early morning hours. Total demand of the household may peak at 7 to 8:00 a.m. Constant thermostat settings improve load characteristics.

The usual range in installed capacity runs 8 to 15 kw, depending on the size of house, insulation, and other factors. Although kwh usage of heating installations is high, the load connected at any particular time of day is moderate compared with other modern high-wattage appliances.

Several REMC's plan to continue demand studies and other surveys on the effects of heating on the system. Among these are: Tipmont REMC, Linden; Shelby



Young and old enjoy electric heating in hundreds of new rural homes. Base-board units make an attractive installation in Ward Miller's new home on Morgan County REMC lines.



County REMC, Shelbyville; Southeastern Indiana REMC, Osgood; and Parke County REMC, Rockville.

How do REMC's like the load?

"Electric heating is a good load," say the 12 managers most actively promoting it. They list the following question to be answered before active promotion of electric house heating is undertaken:

How low a rate is needed to get the business?

What is the cost of furnishing service?

What type fits the system's load characteristics best?

What other uses maintain balance in the yearly load curve?

Harold Eaton, manager of Morgan County REMC, gave typical reasons for promoting electric heating: first, as a real service to members; second, for REMC load growth. He finds electric heating on an all-electric rate a good way of insuring other loads, increasing margins, and balancing rapidly increasing farm loads which peak during other seasons.

What lies ahead?

Manager Frank Ratts and Engineer Francis R. Rudolph of Southeastern Indiana REMC have been making a careful study of electric



The Fred Rhodes modernized their century-old home with heat panels recessed into newly plastered and insulated walls. It costs less than \$1 a day to heat this big house with electricity from Nobles County REMC.

heating, projecting results into the future. Rudolph advises, "Each co-op must consider house heating as it relates to system load characteristics; this varies regionally. It is doubly important to study the problem carefully on a system generating its own power." Electrification advisers on this REMC staff found that they had to learn a lot about housing costs, construction, insulation, humidity control, and heat loss.

"Electric heating is here; we'd better promote it and control it," is the general opinion expressed.

Experience in Indiana shows that electric heating's growth is slow enough to permit keeping ahead of member requests in gaining information and heavying up construction.



Howard Clutts, superintendent, and James W. Owens, Jr., manager of M. & A. Electric Power Cooperative, Poplar Bluff, Mo.

Two Plants Win Diesel Awards



Don H. Decker, superintendent, and Orville Hurford, manager, of Thumb Electric Cooperative of Uby, Mich.

Operating efficiency by REA borrowers using internal combustion engine generating plants is encouraged by an award which *Diesel Progress* magazine makes annually. A bronze plaque was awarded each year starting with 1951 to the most efficiently operated plant.

For that first year, the award went to the Graham County Electric Cooperative, at Pima, Ariz. In 1952 and 1953 the winner was Wolverine Electric Cooperative at Big Rapids, Mich. The winner in 1954 was the M & A Electric Cooperative at Poplar Bluff, Mo. Then in 1955, Wolverine came out on top again.

This year two awards were made. For the second time, M & A Electric Cooperative was a winner—in the category of plants with capacity of 5000 kw and over. The most efficiently operated plant in the smaller capacity group was determined by the magazine's judges to be Thumb Electric Cooperative, at Uby, Mich.

To determine the most efficient operation, such pertinent data as size of plant, gross kilowatt hours generated, percentage of

station service, plant factor percentage, fuel costs, content of fuel used per million BTU, hp hours per gallon of lube oil, labor costs, including operators, maintenance and material were tabulated. Because of the large variations in the cost of fuel throughout the country, a standard average unit charge was used. Fixed charges such as depreciation, interest, taxes, and insurance were not included, as they do not reflect operating efficiency.

On this basis, it is interesting to note that in each succeeding year the winning plant operated at a lower rate:

1951 Graham County	7.27 mills
1952 Wolverine	6.85 mills
1953 Wolverine	6.48 mills
1954 M & A	6.16 mills
1955 Wolverine	5.47 mills
1956 M & A	5.09 mills

Manager James W. Owens, Jr., points out that constantly increasing efficiency in operations has come to be a matter of great pride among the staff who run the plant at Poplar Bluff for the M & A Electric Cooperative. This strengthens the position of the cooperative and helps keep rates for electricity low.

YARD LIGHTING



Hancock-Wood Electric Cooperative, of North Baltimore, Ohio, now offers members a new type of outdoor lighting service. The cooperative installs and maintains on the member's premises one or more automatic photoelectrically controlled luminaires of the type used on streets and highways. The lights are connected directly to an existing secondary. The member pays \$3.00 per month per unit for the service.

Manager Powers Luse reports that the cooperative has already installed over 200 of these units. He anticipates installation of about 1000 units in the next 3 years.

More Modern Dial Telephones for Rural Areas

Just 9 days after the Rural Electrification Administration signed a loan to the Western States Telephone Company, Holbrook, Ariz., it advanced part of the funds needed by the company. REA was able to make this advance of funds in record time because the borrower complied promptly with all essential prerequisites.

Here REA Administrator David A. Hamil (right) hands over a check for \$350,000 to Carl H. Jennings, president of the company. REA Section Head Harold Clark (left) and Leo Jaffe, attorney for

the company, were present for the occasion.

This advance was part of an REA loan of \$2,932,000 which will enable the company to provide modern dial telephone service for 5,000 rural subscribers in parts of Arizona, New Mexico and Texas.



Virginia Plans Better Lighting

In 71 counties of Virginia, extension agents are scheduled to carry on electric lighting information programs with rural families. They are well equipped for the job as a result of five 1-day training schools on lighting that were an inter-industry and inter-agency activity of this year's power use program in that state.

Total attendance was 435 at the training schools held March 25 to 30 in the five Extension Service districts of the state. Extension Service assured excellent attendance of its agents by making lighting the first-day program of its regular two-day spring district meetings.

The Virginia Farm Electrification Council sponsored the lighting schools for personnel of rural electric co-ops, power companies, and dealers, as well as Vo-ag groups and Extension Service. Advance planning made the schools effective and gave Virginia's lighting program a strong start, 6 full months ahead of the anticipated peak of the lighting campaign, October 1 to November 15. Farm organizations and publicity media will help carry out the lighting promotion at the local level.

In preparing for the series of meetings, committees from the state Farm Electrification Council assembled and reviewed visual aids and sources of information on lighting. A list of these helps was prepared and distributed at the training schools. Handouts also included lists of recommended light-



J. P. Ditchman, farm lighting specialist, shows equipment to Virginia co-op employees.

ing equipment, together with names of dealers in Virginia who handle the equipment, and described lamp kits available for 4-H and school projects.

Aileen Page and Joe Ditchman, authorities from General Electric's lighting institute at Nela Park, Cleveland, showed how to plan and conduct lighting demonstrations.

As a result of the five training schools, demonstrations of lighting installations are planned in rural homes and farm buildings in 31 counties. "A case demonstration does more than any other thing to show rural people how good lighting can help them," W. H. Brown, manager of Virginia Electric Cooperative at Bowling Green, told a group at one of the district schools where he appeared on a panel discussion. "I am sure electric cooperatives can help this program in many ways—by planning with the extension agents, providing facilities for demonstrations, and by locating interested dealers."

Another rural electric cooperative representative who appeared on one of the training school programs was R. W. Gouldin, electrification adviser for Northern Neck Electric Cooperative at Warsaw. He said, "We'll help to get materials and visual aids. We want to see our rural people get these demonstrations on electric lighting and benefit from them."



Joint Workshops Train 400 Arkansas Leaders

Arkansas inter-industry and inter-agency representatives early this year initiated a 2-year program of joint training in home electrification. What has been accomplished in the first few months suggests a pattern for efficient training that may interest rural electric leaders in other states.

More than 400 Arkansas homemaking leaders and instructors picked up latest information on electric cooking and refrigeration at 21 home equipment workshops held at 18 locations in the state early this spring. These were sponsored by the Arkansas Rural Electrification Council, working with Vocational Home Economics supervisors and Home Economics Extension Service leaders.

Eight teams of home economists conducted the 21 workshops in a 6-day period. They had received special training and planned these demonstrations at a "train the trainers" workshop held in December by the electrification council.

The series of meetings was attended by 182 high school homemaking teachers, 92 extension workers, 105 home demonstration county council members, and 21 power suppliers' home economists and several industry home economists who helped with the presentations.

The series of workshops was the

outgrowth of a survey by the electrification council which showed the need for more electrical equipment in high school homemaking departments and refresher training for teachers.

Returns from 371 vocational home economics departments surveyed showed that a large percentage of the schools responding to the questionnaire lacked one or more items of electrical equipment. The following table shows the number of schools which reported lack of various items.

Sewing machine	16
Refrigerator	33
Range	89
Steam iron	92
Mixer	136
Table lamp	159
Floor lamp	224
Clothes washer	263
Freezer	268
Clothes drier	292
Ironer	296

Only seven departments had electric dishwashers and only 13 had electric roasters.

Louis Sprain, president of the Arkansas Rural Electrification Council and REA field representative, summarized the findings by pointing out, "These figures tell their own story of the need for modernization of our home economics departments' equipment to prepare our future homemakers for living better electrically."

SAFETY



SAFETY MAKES SENSE

"Safety Makes Sense." This is the slogan adopted by the National Safety Council and the U. S. Department of Agriculture for the 14th National Farm Safety Week, July 21 to 27. REA Administrator Hamil asks the co-operation of all borrowers in calling to the attention of their consumers the tragic toll of farm accidents each year and in suggesting safety measures that can help save lives and reduce injuries.

Electric current accounts for only 3.2 percent of fatal farm accidents but ranks eighth among the causes. This is of special concern to the electric cooperatives, which have a responsibility to their mem-



bers in preventing electric accidents. The accompanying chart shows that the most dangerous ages are 15 to 54 in frequency of fatal electric accidents.

AGE ELECTRIC CURRENT
Percent

Under 5	1.7
5-9	1.2
10-14	1.7
15-19	11.9
20-24	10.7
25-29	12.9
30-34	11.2
35-39	9.5
40-44	10.2
45-49	9.5
50-54	6.3
55-59	4.3
60-64	4.5
65-69	2.2
70-74	1.5
75-79	.7
80-84	0.0
85 and Older	0.0
ALL	100.0

Drowning is the cause of 40 percent of accidental deaths for children under 10 years of age. From 10 to 19 years of age, firearms lead as the chief source of accidental deaths. Machinery accounts for most fatal accidents to farm people in the age groups between 20 and 69 years of age. For older people, falls lead in the cause of death. These four causes of mishaps account for two-thirds of all accidental farm deaths, according to a tabulation covering the years 1949 through 1953.

Borrowers Need To Know How Funds Are Protected By

Federal Deposit Insurance

REA requires its borrowers to deposit its funds in depositories which are covered by federal insurance. There has been an increasing number of requests for information about the protection afforded by the Federal Deposit Insurance Corporation and the Federal Savings and Loan Insurance Corporation to deposits of REA borrowers. Most of these inquiries concern deposits in several accounts and aggregating more than \$10,000 in one bank or other depository. REA is asked, also, if increased protection is afforded when a depository pledges funds or securities to cover deposits in excess of \$10,000.

RURAL LINES is glad to print information on this subject prepared especially for REA borrowers:

The applicable sections of federal law under which the FDIC and FS&LIC were created specify that the total insurance which any insured member may have in any one insured institution is \$10,000 for accounts held in the same right and capacity. Regulations issued by FS&LIC provide, however, that "each valid trust estate invested by the fiduciary in an insured account is an insured member separate and distinct from any other valid trust estate invested by the same or another fiduciary in the same insured institution. If the owner or the beneficiary of any such trust estate

has any other investment in the same insured institution, held in a different capacity and right, he is, as to such investment, an insured member separate and distinct from such trust estate." FDIC regulations contain a similar provision.

It appears, therefore, that Federal insurance corporations may insure several accounts of any one owner in one institution, provided that valid trusts have been established for each account. Simply assigning different titles to accounts would not, of course, establish a trust. The insuring corporation reserves the right to determine upon payment of insurance which of such accounts shall carry \$10,000 aggregate of insurance.

Separate accounts in the same bank for consumers' deposits, membership fees, or patronage credits assigned might each be covered separately if these funds are in fact and in law held in trust for the members. In such event, the titles of the accounts must properly designate the type of funds involved, the monies should not be used by the depositor for its own use, and records substantiating the portion of ownership of each consumer or member should be maintained. In any event, the system attorney should be consulted concerning the protection of accounts in any one depository aggregating more than \$10,000.

A study of decisions rendered by several state supreme courts indicates that, in general, a bank may not legally pledge funds or securities to secure funds on deposit. In some states, an exception to this prohibition is made in connection with deposits of "public funds." The law of each State would, of course, govern.

We are aware of no case testing the legality of pledging funds or securities to secure deposits comprising advances of loan funds from REA as such. While it is true that "trust" language is used in the loan contract and in the title of the bank account, and while it appears that a lien or charge may be impressed upon the account so that it could be used, even as against claims asserted by third parties, only for the purposes set forth in

the loan contract, it is doubtful that loan fund deposits would be considered "public funds."

In the event a bank becomes insolvent, preference in liquidation may be given to "public funds" secured by pledges of funds or securities. One of the criteria relied upon in determining the existence of "public funds" is whether the loss in the event of a bank's insolvency would be the Government's. The borrower is obligated to repay the amount of advances from REA regardless of loss through insolvency of a bank or otherwise; therefore, it appears that such advances probably would not be considered "public funds," and, therefore, no increased protection would be obtained from funds or securities pledged to secure deposits of such advances.

Denver Workshop To Study Competition

Meeting competitive inroads into the rural electrification market will be the main action subject of the 4th annual National Power Use Workshop-Conference, September 29 through October 1 in Denver's Shirley-Savoy Hotel.

In line with requests from a number of state inter-industry groups, the format of the Denver meeting has been changed from previous workshops to a conference-type program.

Registration begins at 2 p.m. Sunday, September 29, and exhibits are to be in place by 2 o'clock, ready for the big Sunday evening opening. A round-up of the most successful state inter-

industry council activities will highlight the state council dinner, Sunday evening.

Conference topics on September 30 and October 1 cover trends and problems in selling appliances to rural consumers, a report on a study of how much can be spent economically on power use promotion, based on data from 34 power suppliers, and discussions of standardization for electric water heaters, house heating, and other subjects of interest to power suppliers.

A major portion of the conference will be beamed to directors and managers of distribution, generation, and statewide electric cooperative associations.

Meeting Quorum Is No Problem When A Co-op Holds A Separate

Children's Annual Party

Attendance at annual meetings has increased by about 100 members since Decatur County Rural Electric Membership Corporation, Greensburg, Ind., initiated its separate children's party in 1955. This is a good tip for other cooperatives where the lack of baby sitters threatens "no quorum" at the annual meeting.

Members Like the Party

Parents like the children's party. It permits them to attend the annual meeting free of concern about how the children are getting along at home. Parents who have been bringing their children to the meetings each year can now deposit them under supervision and go on in to take part in the co-op's business session. No longer do mom and dad have to pull little Willie out from under the chairs, and take little Mary out for frequent bathrooming and drinks of water.

Members who do not have children in the "baby sitter" ages like the children's party, too. The new

arrangement eliminates noise and confusion which used to be a major distraction during the business meeting.

Children Like the Party

Children like the separate preparations for their fun and care during the annual meeting. Mrs. Gilman Stewart speaks for many children when she reports, "Our 5-year-old Tommy says he is going to *'his'* meeting when daddy and I go." Two hundred boys and girls came to the children's party in 1956. The turnout this year was about 250. "Word gets around," says Bob Hayes, electrification advisor who plans and supervises the party. "Now children bring their parents to the annual meeting. Some of these are members who have not attended before."

Management Likes the Party

Management likes the children's party. Manager R. E. Thomson says the meetings are "smoother, shorter, bigger, and better" since the innovation of the separate

Members' children have a good time watching comedy films and other entertainment at annual co-op party.





Adviser Bob Hayes (center) directs party with help of baby sitters in back-ground.

facilities to take care of the youngsters. "Advantages far outweigh the \$125 in additional costs", is the verdict of the board.

Newsletter publicity for the annual meeting includes a note about the children's party, and the official notice of the meeting contains a card advertising the party, with time, place, and "MOVIES—PRIZES — SOUVENIRS — TREATS" in big type. The note reads: "We want all the boys and girls age 14 and under to attend this party. Bring them with you and drop them off at the office after 6:30 p.m. Pick them up again when your meeting is over. We will have baby sitters for the tiny tots and plenty of chaperones."

The children's party is held in the garage of the headquarters building; the adult's meeting, in a local gymnasium. Both begin at 7 p.m.

Balloons and other souvenirs for everyone and games, toys, and sports equipment prizes given during drawings pleased children of all ages at party.

Prizes—Movies—Eats

On arrival, the children register for drawing of prizes—dolls, stuffed toys, basketballs, baseballs, and games. Prizes are drawn between the movies—chiefly comedies—which comprise the program. The children's program is timed, by advance planning and last-minute checking across town by telephone, to end 10 minutes after the parent's program, so that there are no problems about pick-up time.

Some of the employees and their wives and some neighbor ladies assist Hayes in making the children's party a success. Some of the children left in the care of Hayes and his baby sitters are quite young and require individual attention and reassurance. The party supervisors learned the hard way that ice cream and soft drinks in the hands of children can create a mess. Now they hand out boxed cracker-jack. "It is more satisfactory for the small fry to handle, and creates less debris for the staff to clean up," advises Manager Thomson.

In recommending the children's party for other co-ops, Thomson points out that this is a technique for improving relations with present members and for developing a favorable attitude in future members. "It gets them young," he says.



POWER USE EXCHANGE



An open house of members' homes has become an annual event for members of Walton Electric Membership Corporation, Monroe, Ga. The March issue of *Realite* carried 12 pictures and stories of members' well electrified homes open from 2 to 6 p.m. for a Sunday Home Show, March 24. This co-op sponsored another open house event recently when senior 4-H'ers enrolled in a farm business project visited Walton EMC offices to learn about the electric co-op's business.

Codington-Clark Electric Cooperative held a meeting early in the spring at its headquarters in Watertown, S. Dak. to inform local farm members on irrigation possibilities, methods of drilling wells, and procedures for getting a state pumping permit.

Three freezer demonstrations a day, at 1:30, 3:30, and 8 p.m. was the schedule for Eleanor Reed, Rural Cooperative Power Association home economist, at Kandiyohi Co-op Electric Power Association's big freezer party, May 31. The affair was held at Kandihoyi's headquarters, Willmar, Minn. *Kandiyohi Kilowatt* publicized the party, a special price offer on an 18 cu. ft. freezer, and souvenirs and prizes.

Homemakers Holiday shows were given in four eastern South Dakota cities this spring with four local rural electric co-ops as co-sponsors; at Mitchell, by Inter-county Electric Association at Huron, by Beadle Electric Cooperative; At Aberdeen, by Northern Electric Cooperative; and at Sioux Falls, by Sioux Valley Empire Electric Association. Homemakers Holiday, a 3½ hour show, started off with an audience participation, TV star-studded act. A parade of spring styles and furs followed and the program ended with a Kitchen Karnival cooking show and drawing for the range, TV set, and other prizes given away at each show.

A column in the monthly newsletter of the Co-op Electric Company, St. Ansgar, Iowa, lists new members in an all-electric club that now numbers 265. Membership is conferred on those who send in the All-Electric Farm Sign Application appearing in the publication, *REA Co-op Electric News*.

Twenty dealers are taking part in a 60-day home freezer promotion project shared by five member cooperatives of Southwestern Federated Power Cooperative, Creston, Iowa. According to *Power News*, Southwestern acted as the pur-

chasing agent and distributor for a 5-carload order of freezers, 4 carloads of the 19.2 cu. ft. size and 1 carload of 17 cu. ft. capacity. Local newspaper and radio advertising broke the news of the 5-carload special price and gave names of participating dealers.

Four-County EMC, Burgaw, N. C., has a fuel range replacement offer of free installation and free electricity, the power bill being discounted \$2 per month for 4 months.

"With a 'kitchen' party everyone has a good time, even the hostess," announces Sybil Kreiger, home economist for Shelby Rural Electric Cooperative, Shelbyville, Ky., in the co-op's newsletter, *Cooperative Builder*. Miss Kreiger offers members of their clubs a chance to hold kitchen parties in homes. Hostesses send out "an invitation to more leisure," and friends and neighbors gather for an evening demonstration of an electric dryer, refreshments, and prizes.

North Dakota electric cooperatives are setting aside 5 cents per meter to finance a statewide 4-H educational activity on demonstrations. North Dakota Agricultural College's 4-H office has prepared a new demonstration handbook featuring this program. 4-H winners in county and district contests will receive electric equipment awards; the state winner, a \$200 college scholarship.

White County REMC, Monticello, Ind., furnishes members free wiring materials to hook up any new range, water heater, or dryer.

Its 1956 annual report shows that last year 383 among 3645 members took advantage of this free wiring offer to install 109 electric ranges, 247 water heaters, and 127 clothes dryers. The REMC's power use adviser suggested many wiring changes on members' farmsteads, where service entrances of 100 and 150 amps were installed.

An irrigation meeting for managers and advisers of seven co-ops was held April 23 at Clay-Union Electric Corporation headquarters, Vermillion S. Dak. The subject was consumers' irrigation problems. Board members joined co-op personnel for an evening's review and discussion of the "meat" of the day's program.

Lincoln-Union Electric Company, Alcester, S. Dak., sponsored a joint meeting in March for neighboring co-ops from South Dakota and nearby Iowa on problems relating to serving irrigation loads.

An estimated 500 persons attended a cooking school held recently on two successive nights in Andalusia, Ala., headquarters of Covington Electric Cooperative. Mrs. Joy Cooke, co-op home economist, planned and coordinated the affair, which was jointly sponsored by Alabama Electric Cooperative and commercial interests. Forty prizes—small plug-in appliances, plants, and groceries—and the food prepared during the demonstrations were given away. Everyone when home happy, for each person attending received a 150-watt bulb, a Live Better . . . Electric key ring, and a sample of flour.

Rural Lines

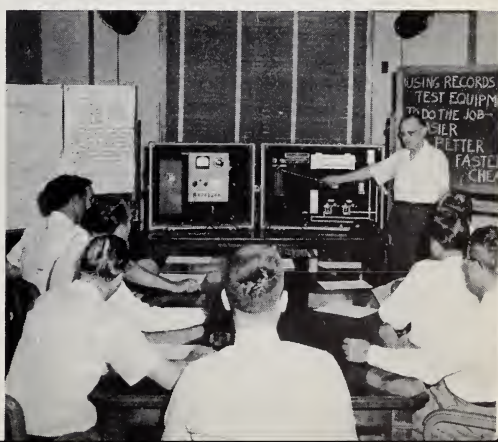
Technical Training Will Speed Dial Conversion



**Industry Offers
Plant Schools
SEE Page 19**

**College-level Training
SEE Page 18**

**REA Staking Conferences
SEE Page 22**



Here Is A New Opportunity . . .

College-level Training for Telephone Technician

For some time you have been reading and hearing about the shortage of technically trained men—of engineers in particular. Perhaps your system has felt the effects of the shortage. The problem has had a pronounced effect upon the telephone industry that will continue for some years.

It should be encouraging to learn, then, that something is being done about the situation. The results of numerous studies and investigations indicated that in most instances engineers were, of necessity, devoting much of their time to technical but non-engineering work which could be handled by less highly trained personnel.

If personnel with limited technical training could be provided to take over a telephone technician's duties, fully trained engineers could then devote all of their time and attention to professional engineering matters. It was apparent that courses of technical study could, in a two-year period, provide a high school graduate with the necessary basic and specialty training that would enable him to take over a telephone technician's duties.

The Bell systems and some of the larger Independent telephone companies organized their own training programs designed to provide the "subprofessional" personnel which circumstances dictated.

To aid the smaller telephone companies and cooperatives which were faced with the problem of securing adequate personnel with

sufficient technical training on telephone matters, REA undertook conversations with the heads of several technical institutes which seemed in a position to offer a suitable curriculum for telephone technicians.

The first of such courses has been announced by the Southern Technical Institute, at Chamblee, Ga., for the fall quarter of 1957. Several other technical schools have expressed an interest in offering telephone technician courses. In the not too distant future, graduates of these courses will be available to take their places in the telephone industry.

Southern Technical Institute is a full-time, two-year, co-educational boarding college offering technical institute training. The college operates as a unit of the Engineering Extension Division of the Georgia Institute of Technology.

The course in telephone technology will require 120 quarter hours credit for graduation and the Associate in Science degree. The student without advance credit could complete this course in two school years of 18 calendar months. The course will be divided so that about two-thirds of the students' time is spent in the classroom and one-third in the laboratory. The course would provide (1) general training in the technical sciences of mathematics and physics; (2) general training in English, human relations, supervisory training,

(Turn to page 21)

Industry Offers Plant Schools

Telephone equipment manufacturers train operating company personnel in maintenance of central office equipment once it has been installed and placed in operation. There is no additional charge to purchasers of the equipment for the training, except that transportation and subsistence costs must be borne by the purchaser.

These courses of training at the factories of the manufacturers vary in length from 4 to 11 weeks. All of them try to provide the trainee with: (1) a knowledge of the fundamentals involved in operation of the equipment; (2) training in the analysis of the specific circuitry of the equipment; (3) training in the inspection, testing, adjustment, and assembly of equipment components; and (4) instruction in the proper operation and maintenance of the equipment.

Experience on the Job

The instruction provided by equipment manufacturers is particularly beneficial if it is supplemented by on-the-job experience in installing and testing the C.O.E. REA recommends that all dial equipment maintenance personnel be provided with adequate training and, if possible, that such training be completed in time to permit the trainee to actively participate in the installation, testing, and cut-over of the central office equipment. (See REA Bulletin 442-1R1 and Technical Operations Manual, Section 1266).

Nearly all REA borrowers are familiar with the technical training offered by equipment manufacturers. Not so widely known is the availability of training in the

plant schools conducted by the associated Bell operating companies and the larger Independents.

Spokesmen for these companies have pointed out that personnel of REA borrowers which have operating or toll agreements are welcome to attend the courses. The initiative to participate in such training should, of course, be taken by the borrower and the decision as to whether training assistance can be given would rest with the individual Bell or large Independent company offering the course.

Wide Range of Subjects

These plant schools cover a wide range of subjects and vary considerably in duration. However, those of primary interest to REA borrowers are concerned with operation and maintenance of outside plant facilities, carrier, microwave, and repeater equipment and would usually run from one to two weeks.

Attendance by borrower personnel at these classes must, of necessity, be limited, as they are conducted by the companies for their own employees. However, one or two trainees from a particular company or cooperative can usually be accommodated in a class without difficulty. A nominal charge per trainee may be made. Borrower systems would pay travel and subsistence.

It is strongly recommended that all REA borrowers having personnel in need of this type of training contact the Independent Company Relations people of the associated Bell telephone company or large Independent telephone company in their area to determine if it is practical to arrange for training.

New Fiber-glass Crossarms Get Field Test In Virginia



The test crossarms are equipped with braces, special aluminum curved washers, tandem bracket for conventionally insulated circuit and special conductor clamps for two other circuits using the fiber-glass of the crossarm for insulation.

Advantages promised in fiber-glass poles and crossarms have been undergoing tests by electric and telephone systems during the past 2 years. The latest field test installation was made in Virginia with fiber-glass crossarms manufactured for REA by Gar-Wood Industries, Inc., of Ipsalanti, Mich.

Actual service experience is the best basis for comparing fiber-glass with wood in:

- (1) Damage caused by lightning;
- (2) Damage caused by woodpeckers;
- (3) Damage from power leakage currents; and

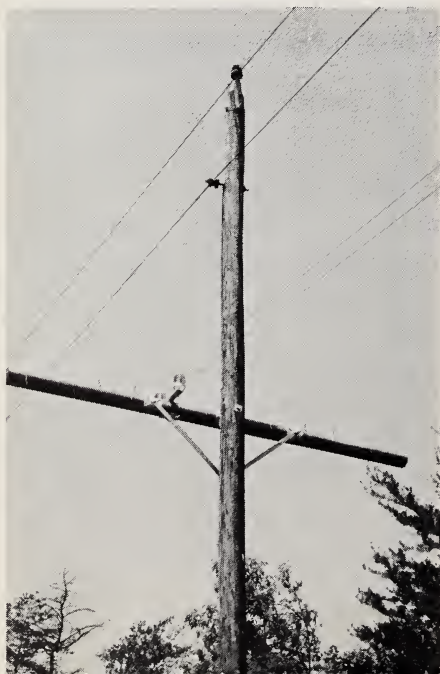
- (4) Replacement problems and maintenance expense.

A principal consideration which will determine the extent to which REA can recommend fiber-glass poles and crossarms is whether a considerably longer useful service life can make them competitive, on an annual cost basis, with conventional construction.

One possibility for reducing the initial installed cost depends on the inherent insulating qualities of fiber-glass. If lines can be fastened directly to the crossarm, the saving in cost of pins and insulators should be considerable. To test this, REA telephone engineers secured the cooperation of the Piedmont Telephone Company, of Manassas, Va., in setting up a field trial.

A portion of joint-use line near Haymarket, Va., was selected by Manager S. A. Owens for the installation of 10 fiber-glass crossarms ordered by REA through Line Materials Industries, of the McGraw-Edison Company. Each 10-pin crossarm is a tube of fiber-

Tandem transposition for the pole pair of wires is shown here. The installation was made on poles which the Piedmont Telephone Company shares with Prince William Rural Electric Cooperative.



glass weighing about 10½ pounds. Phenolic resin caps are bonded to the ends.

The existing bracket circuit was transferred to the new crossarm and installed with conventional line insulators on pin positions 5 and 6. Two additional circuits were pulled in and fastened directly to the surface of the crossarm by toggle bolts and special clamps. Transposition of these circuits is accomplished in the same manner as with conventional drop brackets.

Measurements of insulation leakage resistance of the three circuits will be made from time to time. REA engineers will use the data to evaluate the practicability of this type of construction.



Lineman J. D. Bean holds the experimental crossarm in one hand as he prepares to place it on the pole. The existing circuit will occupy the pole pair position.

Here the installation is being completed, with the lineman clamping one conductor of the second circuit to the bottom of the crossarm to provide transposition.



(COLLEGE-LEVEL, from page 18) technical writing, public speaking, business law, and economics; (3) specific training in electrical circuits, instrumentation and test equipment, electrical drafting, telephone transmission lines, central office equipment, automatic dial and toll equipment, installation, design and maintenance of tele-

phone equipment, outside plant, carrier systems, radio and microwave, utility accounting, surveying, mechanics, and traffic analysis.

Additional information may be obtained by writing Mr. W. R. Halstead, head, electrical department, Southern Technical Institute, Chamblee, Ga.

Help Telephone Engineers

Borrowers have found the staking conference an excellent method of technical training for persons engaged in engineering and construction of outside telephone plant. REA has conducted 12 such conferences for consulting engineers and borrower personnel. Total registration has been nearly 500, indicating the interest in and need for technical training.

A telephone plant may be well designed on paper. The staking of the physical plant, however, may bring either of two results—a good, economical plant, or one that is expensive and undependable. The purpose of the staking conference is to achieve the proper strength and capacity, plus maximum economy both in construction and in operation for many years to come.

Each conference is a 3-day session planned around practical and down-to-earth group discussions of staking considerations. REA staff and field engineers with specialized knowledge of design and construction of outside plant have led these discussions. On several occasions REA has brought in authorities on technical subjects from Bell companies and other segments of the telephone industry.

Almost every staking consideration is included in the agenda of these meetings. Some of the major subjects are: Responsibilities of the engineer and owner regarding staking; the National Electrical Safety Code; protection of aerial wire plant, cable plant, joint use plant and stations; right-

of-way clearing and trimming; pole strength considerations; guys and anchors; transpositions; joint use.

Another useful type of training is the wire chief's test set demonstration. This has been held in connection with several of the staking conferences, to show the value of everyday use of this set in every dial central office.

REA staking conferences have been held in the following states: Colorado, Georgia, Indiana, Iowa, Kansas, Maine, Minnesota, Missouri, New York, Oregon, Tennessee and Wyoming. In addition to those attending the conferences from within each state, personnel representing borrowers and consulting engineers have come from Alabama, Florida, Illinois, Kentucky, Michigan, Montana, North Carolina, North Dakota, Ohio, Pennsylvania, South Carolina, South Dakota, Texas, Utah, Washington and Wisconsin.

The conferences held so far have brought good results in the form of better constructed plant and reduced costs. The enthusiastic response from those who took part indicates that more REA staking conferences will be held in other areas. In fact, plans are now being made for a regional conference covering North and South Carolina sometime in October or November. Any REA borrower or group of borrowers wishing to plan a staking conference should write first to REA's Telephone Engineering Division.

REA Engineers Confer With Industry Representatives On

Wire and Cable Specs

The materials specifications which REA establishes as protection for the systems constructed from loan funds are developed in cooperation with telephone industry representatives. As new products are developed, it is necessary to alter existing standards or to establish new ones.

When REA found it desirable to call an industry meeting late in the spring to consider the many improvements in wire and cable for rural use, invitations were sent to manufacturers, representatives of the operating telephone industry, and to interested Government agencies.

The two-day conference brought out more than 80 participants. It included representatives from 28 manufacturing companies in the U. S. and Canada, four government agencies, USITA, and the Bell systems.

Of particular interest to borrowers is a standard proposed for buried distribution wire. This covers a new design not yet in general production. REA hopes that pilot manufacturing will indicate the possibility of a low enough price for widespread use of buried wire in place of open wire construction in areas where buried plant is attractive.

The specification discussed at the conference calls for 2-wire, 19 gauge conductors with polyethylene insulation. Steel ribbons or

bronze tapes will provide the armoring and shielding. Over the armor is a plastic jacket.

It is believed that these characteristics will provide adequate protection against rodents and lightning strikes.

The proposed specification for buried cable calls for a thick inner jacket of polyethylene with copper shielding, and an over-jacket of plastic. This is for use outside gopher areas.

Another subject highlighted at the conference is a proposed color code for plastic-insulated exchange cable. The proposed color code would ultimately result in an industry-wide standard with attendant advantages to the manufacturers and users.

Color coding offers potential benefit to REA-financed systems by simplifying cable construction and maintenance. It will be of value especially where newer types of cable terminals which offer easy access to all pairs of the cable are used.

Other specifications for wire and cable discussed at the meeting were those for bridle wire, 1-pair aerial distribution wire, plastic-coated line wire, and plastic-insulated and jacketed telephone station wire.

Adoption of standards to cover these additional materials will offer REA borrowers protection in future system construction.

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